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SUPPLEMENTARY REPORT ON THE COALS OF CLOVER FORK AND POOR FORK

IN

HARLAN COUNTY

BY

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This report, which is supplementary to Bulletin No. 13 of the Kentucky Geological Survey, gives coal developments made since the publication of that report and is the result of field examinations made in 1916 in the areas drained by Poor Fork and Clover Fork of Cumberland River. That portion of Martin's Fork now served by railway is also included.

Full section samples of the coals were taken by the writer from all mines where entrance into the coal had penetrated far enough to ensure standard quality. Results of these analyses, made under the direction of Dr. A. M. Peter, Chief Chemist of the Kentucky Agricultural Experiment Station, are given herewith.

The same system of description of coals is followed herein as employed in Bulletin 13. Altitudes, where shown by more recent levels to be only slightly different from those in No. 13, are retained as in that bulletin. The differences are slight on Clover Fork but more marked on Poor Fork. Where differences are important, true altitudes are given.

Distances are estimated as nearly as possible from recent, more accurate maps.

DETAILED DESCRIPTIONS

On the Cumberland River opposite the town of Harlan, Walker & Baker have a small mine from which the town is largely supplied with coal. Several openings have been abandoned, but the one operating gives the following bed section at its face 60 yards in:

Harlan Bed.

Shale.
Coal ..... 3″
Bone coal ..... 2″
Coal .....41″
Altitude, 1570.

Though well under cover in the steep hill, the coal is muddy and unfit for sampling. The streak of bone coal, usually called such and so called in this report, might perhaps better be called a dull splint coal. It is generally included in shipments, apparently without complaint, and analysis of a sample from the Harlan-King mine shows it to be good there. It is persistent in this bed throughout the Harlan field.

MARTIN'S FORK

Altitude of mouth, 1160. A bench mark of the United States Geological Survey on the west abutment of the railway bridge across Martin's Fork at Harlan gives the altitude there as 1178. Another bench mark at Harlan court house is at altitude 1198.

On the head of a left drain, ¼ mile up Martin's fork, the Republic Coal Company has a mine with mine haulage

and coal delivery by overhead cable to the track by the Harlan station on Clover Fork, whence, also, access to the mine by wagon road is had.

A sample of the coal of this mine was taken from the face of the main entry, ¼ mile in, the bed section there and the analysis of the coal being as follows:

Harlan Bed.

Draw slate	6" (?)
Block coal	1½"
Shale	¼"
Coal	3"
Bone coal	2"
Coal	43"
Shale	7"
Coal	12"
Shale.	

The ¼ inch shale parting was omitted in sampling, because reported excluded from shipments. While it may be questioned if this is wholly accomplished, it cannot affect other than the slack coal after screening. The bottom coal, which is mined only in entries, was also excluded from the sample, leaving 49½ inches of coal as its content.

For analysis of this coal see analysis No. 1 in table of analyses at end of report.

SPEED JONES BRANCH.

On the right, ½ mile up Martin's fork. Altitude of mouth, 1165.

On the right of this branch, adjacent to the Walker & Baker mines, the Wallens Creek Coal Company has its mine, No. 2. This mine uses mule haulage and compressed air. The coal bed varies from 3 to 4 feet in thickness, usually is nearly 4 feet, and includes an inch or two of bone coal and a knife edge parting, not constant, about 8 inches from the top. A sample was taken from near the main entry, over ¼ mile in, with the following bed section.

Bed section at point of sampling:

Harlan Bed.

Slate.	
Coal	2"
Bone coal	1"
Coal	45"
Fire-clay.	
Altitude, 1610.	

The whole 48 inches was included in this sample.

Analysis is given in analysis No. 2 of the table of analyses.

On the left of the same small branch and opposite the preceding mine, the same company has its mine No. 1, operated by electricity. The coal bed is 3½ feet thick at the mouth of the main entrance, over 4 feet at ½ mile in, and will probably average about 4 feet. The bone coal is inconspicuous or generally absent. A fairly good slate roof, reported 2 to 3 feet thick, is capped by sandstone.

Following is a bed section at point of sampling, in room 53 of No. 2 entry:

Harlan Bed.

Sandstone.	
Laminated sandstone	6"
Coal	2½"
Clay	½"
Coal	52"
Shale reported	18" to 24"
Coal reported	12" to 20"

The whole 55 inches was included in the sample. The laminated sandstone comes down like a "draw slate." For analysis see analysis No. 3 of table of analyses.

DAVID SMITH BRANCH.

On the left, 1½ miles up Martin's fork. Altitude of mouth, 1170.

On the right, ½ mile up this branch, the R. C. Tway Coal Company has a mine, operated with mules, having at its mouth 62 inches of coal and 7 inches of shale parting 14 inches from the bottom. Following is the bed

section of the coal from the third left entry, room No. 11:

Harlan Bed.

Shale (reported)	14″
Coal	5″
Bone coal	1″
Coal	43″
Shale	2″
Coal	1″
Shale	6″
Coal	13″

Altitude, 1610.

The two shale partings and an inch of coal between them were excluded from the sample, though it appears probable that some of that impurity is carried into the slack coal. For analysis see analysis No. 4 of table of analyses.

On the left of the same branch, at its head, a 4-yard entry gives the following bed section half way in:

Dean (Fire-clay or Wallen's Creek) Bed.

Shale.	
Coal	31″
Flint fire-clay	5″
Coal	30″

Altitude, 2360.

An inch of clay included in the lower bench of coal is probably of outcrop origin.

Above the entry is a closed prospect into coal at altitude 2455.

On a left branch, 2 miles up Martin's fork, at the crossing of the Chestnut flats bridle path, is an opening into what is, with little doubt, the

Leonard Bed.

Shale	2 ft.
Black slate	8″
Coal	15″
Shale	2″
Coal	14″

Altitude, 1760.

MILL BRANCH.

On the right, 3½ miles up Martin's fork. Altitude of mouth, 1180.

On the left, at the head of this branch, two entries are opened, in preparation for immediate mining, by the Wilson-Berger Coal Company. At the face of one, 20 yards in, a bed section and samples were taken. Though the covering there is fairly good and the coal apparently sound, it is presumable that the analyses are not quite up to the standard of the coal as it will be found farther under ground. No prospecting has been done to determine the correlation of this bed, but the probability seems to be that it is of the "Smith" bed of the United States Geological Survey report on the Cumberland coal field, and such is assumed here to be the case.

Smith Bed.

Shaly sandstone.		
Block coal	4″	Upper bench.
Shale	3″	
Coal	36″	
Shale	¼ to 1″	
Coal	16″	
Clay	6″ to 8″	
Impure coal and clay	6″ to 8″	
Coal	46″	Lower bench.
Fire-clay.		

Altitude, 2482.

Analysis of the upper coal bench with ¼ to 1 inch parting included but 3-inch shale parting excluded, is given in No. 5 of table of analyses and of the lower bench in analysis No. 6.

This bed is said to split into two widely separated seams farther north, but not southward. On Day's creek of Clover fork it appears to be split into several thin seams. Southward 2½ miles it is reported 200 feet higher, indicating that the syncline up Clover Fork passes somewhat to the north of Gray's Knob.

The following section is taken from a report by McCreath and D'Invilliers of a bed they found on Little

branch 90 feet below the preceding and now regarded as of the Dean bed:

Dean Bed.

Slate.	
Coal	48″
Clay	3″
Splinty coal	23″
Fire-clay	11″
Shale	3″
Coal	3″
Shale	2″
Coal	25″
Altitude, 2390.	

The fire-clay is said to resemble somewhat that of the characteristic Dean parting, but is without its conchoidal fracture.

From the Wilson-Berger Company the following section was obtained, the preceding Dean opening apparently lost:

Coal	56″	Smith bed.
Slate	23″	
Coal	56″	
Slate, &c.	69 ft.	
Coal	26″	
Slate	12 ft.	
Fire-clay	1 ft.	
Coal	21″	
Fire-clay	9″	
Slate	12 ft.	
Coal	19″	
Slate	17″	
Sandstone	6 ft.	
Gray slate	16 ft.	
Black slate	18 ft.	
Coal	13″	
Sandstone and slate	9 ft.	
Black slate	1 ft.	
Coal	12″	
Fire-clay	6″	
Coal	26″	
Slate and shale	7 ft.	
Coal	6″	
Clay	3 ft.	

The upper coal, 112 inches, is of the Smith bed. About 90 feet lower is the 19-inch coal which may represent a part of the Dean bed, and 50 feet lower still is, perhaps, the Vanderpool (Whitesburg) bed, 42 inches of coal and fire-clay parting, under its customary black slate.

LITTLE BRANCH.

On the right, 4¼ miles up Martin's fork. Altitude of mouth, 1,200 (?).

On this branch the Wilson-Berger Coal Company has a mine into the Harlan bed, nearly ready for large shipments. The bed section at the face of the third left turn from the main entry, 120 yards in, whence a sample was taken, is as follows:

Harlan Bed.

Sandstone.	
Coal	4″
Knife-edge parting.	
Coal	4″
Knife-edge parting.	
Coal	10″
Bone coal	1″
Coal	18″
Bony coal	1″
Coal	5″
Sandstone.	
Altitude, 1595.	

The knife edge partings are not continuous and the bone coal is rather variable in thickness. All impurities were included in the sample, analysis of which proves that they are insignficant.

For analysis see No. 7 of table of analyses.

A new adjacent entry, started on the left of the branch, gives 50 inches of coal.

Additional coal openings on Martin's fork are given in the U. S. Geological Survey report on the Cumberland Gap Coal Field, Professional Paper No. 49.

CLOVER FORK

BAKER BRANCH.

On the right, 5/8 mile up Clover fork. Altitude of mouth, 1165.

The Harlan Gas Coal Company has a mine, electrically equipped, on the left of this branch. A sample of coal was taken from the face of its main entry, about 2000 feet in, with the bed section at that point as follows:

Harlan Bed.

Slate.	
Draw slate	6" to 18"
Coal	1"
Bone coal	4"
Coal	44"
Shale	9"
Coal	15"
Fire-clay.	
Altitude, 1680.	

The strong, smooth roof generally is of sandstone with 6 to 18 inches of draw slate in some parts of the mine.

The sample included only the 49 inches of coal in one bench, the shale and coal below it being taken up only to attain added height of entries. The bed is said to average in the mine 4 feet of coal on a parting of 3 to 18 inches with coal 0 to 12 inches thick below.

For analysis see No. 8 of table of analyses.

On the left, 1¾ miles up Clover Fork, opposite the mouth of Kitts branch, the Rex Coal Company has a mine using compressed air and mule haulage. A sample was taken from the fourth right entry at room 34, where the section is as follows:

Harlan Coal.

Slate over	12"
Coal	5"
Bone coal	2"
Coal	36"
Clay.	
Altitude, 1520.	

For analysis see No. 9 of table of analyses.

KITTS BRANCH.

On the right, 1⅞ miles up Clover fork. Altitude of mouth, 1180.

The Clover Fork Mining Company operates with electricity a mine on the left of this branch. A sample of coal was taken at the junction of the tenth left and main entries, where the following bed section obtains:

Harlan Bed.

Slate.	
Coal	4"
Bone coal	2"
Coal	42"
Fire-clay.	
Altitude, 1600.	

For analysis see analysis No. 10 in table of analyses.

The Golden Ash Coal Company has an electrically equipped mine on left branches, 2¼ miles up Clover fork. A sample was taken here from the fifth left entry at room 26, the bed section being as follows:

Harlan Bed.

Sandstone.	
Slate	1 ft.
Coal	9"
Bone coal	1"
Coal	36"
Clay.	
Altitude, 1570.	

Analysis of the sample is given in No. 11 of table of analyses.

The Wallens Creek Coal Company has a mine with mule haulage and compressed air, on the left, 4½ miles up Clover fork. At the mouth of the mine, in a total thickness of 3 to 4 feet, are many small partings which disappear when 100 feet of covering is reached, but the full thickness of coal is not attained for nearly ¼ mile in on the main entry. The least thickness of clean coal is said to be 31 inches, excepting near outcrop. Following is the bed section at the turn to No. 7 room on No. 5 right entry, where a sample was taken:

Harlan Bed.

Sandstone.
Draw slate ..... 15″
Coal ..... ¼″
Bone coal ..... 3″
Coal ..... 43″
Clay.
Altitude, 1570.

The draw slate is said to be generally from 1 to 2 feet thick.

For analysis see No. 12 of table of analyses.

It is remarkable that though the ash content is somewhat high, the heating power is also high.

LICK BRANCH.

On the left, 5 miles up Clover fork. Altitude of mouth, 1215.

The Lick Branch Coal Company has its mine No. 1 on the left of this branch, worked electrically and with conveyer from mine level to tipple in place of an incline. A sample of the full bed section, as given following, was taken at room No. 2 on the 4th right entry:

Harlan Bed.

Slate.
Coal ..... 5″
Bone coal ..... 3″
Coal ..... 3″
Soft clay ..... ¼″
Coal ..... 35″
Shale.
Altitude, 1575.

The roof throughout the mine is largely sandstone and everywhere remarkably smooth and good, and the coal is very nearly uniform in thickness.

For analysis see No. 13 of table of analyses.

The No. 2 mine of the Lick Branch Coal Company, on the left of a small left branch, 5¼ miles up Clover fork, is equipped like the preceding. A sample was taken here from room No. 22 of the 1st right entry, the bed section being as follows:

Harlan Bed.

Slate.
Coal ..... 7″
Bone coal ..... 4″
Coal ..... 38″
Soft clay ..... 3″
Sandstone.
Altitude, 1560.

Analysis is given in No. 14 of table of analyses.

The East Harlan Coal Company has a mine on the left, 6 miles up Clover fork, ½ mile above Ages creek, where mule haulage is about to be abandoned in favor of electricity. A sample was taken from this mine at room 14 of the 4th left entry. Following is the bed section there:

Harlan Bed.

Slate.
Draw slate ..... 4″
Coal and shale..... 4″
Coal ..... 7″
Shale knife-edge.
Coal ..... 1″
Bone coal ..... 2″
Coal ..... 1½″
Shale knife-edge.
Coal ..... 5″
Pyrite ..... ⅛″
Coal ..... 35″
Fire-clay.
Altitude, 1530.

The ⅛ inch pyrite parting was not included in the sample as it is not continuous, but all else between and including the 7 inches coal at the top and the 35 inches at the bottom was sampled.

Analysis of the sample is given in analysis No. 15 of table of analyses.

JONES CREEK.

On the right, 7 miles up Clover fork. Altitude of mouth, 1230.

On a right branch, ¼ mile up the creek, on the left, ¼ mile up the branch and 40 feet above it, a 4-yard entry gives the following section at its mouth:

Harlan Bed.

Massive sandstone	10 ft.
Shale	2 ft.
Coal	6″
Bone coal	1″
Coal	3″
Bone coal	2″
Coal	33″

Altitude, 1430.

CAWOOD BRANCH.—On the right, ½ mile up Jones creek. Altitude of mouth, 1275.

On the left, ¼ mile up the branch and by it, a 4-yard entry gives the following at its mouth:

Harlan Coal.

Massive sandstone	6 ft.
Shale	2½ ft.
Coal more than	41″

Altitude, 1450.

The bottom of the bed was not found.

Farther up the branch and at it is:

Sandstone	10 ft.
Shale	5 ft.
Coal	2″
Shale	2″
Coal	14″
Shale and coal	1 ft.

Thin coal.

Altitude, 1590.

Still farther up and at the branch, is 27 inches of coal on fire-clay and under 8 feet of shaly sandstone, at altitude 1605. This is of the Leonard bed.

Again farther up, on the left, 30 feet above the branch, at the face of a 5-yard entry is the following:

Keokee (Kellioka) Bed.

Laminated sandstone	3 ft.
Coal	2″
Shale	3″
Coal	2″
Shale	5″
Coal	7″
Shale	3″
Splint coal	8″
Coal	24″

Altitude, 1650.

But half of the bottom coal was seen, the lower foot of it being in water.

At the branch, ¾ mile up, is the following, of doubtful correlation, but if not of the Dean bed then of one close to and probably below it:

Dean (?) Coal.

Sandstone	15 ft.
Shale	1 ft.
Block coal	3″
Splint coal	3″
Shale	6″ to 10″
Coal	24″
Clay	1″
Coal	16″
Fire-clay	1½ ft.
Black slate	2 ft.

Altitude, 2125.

On the right, 7½ miles up Clover fork, is a small branch, with mouth at altitude 1235, on which the King-Harlan Mining Company is starting a mine in anticipation of a large output. A sample was taken from 60 yards in the 1st left entry, where the following section obtains:

Harlan Bed.

Slate (not over)	6″
Coal	8″
Bone coal	2″
Coal	15″
Shale	5″
Coal	9″
Soft clay	½″
Coal	20″
Fire-clay.	
Altitude, 1415.	

The sample included the ½ inch parting but not the 5-inch.

Analysis is given in No. 16 of table of analyses.

The quality of the so-called bone coal of this bed and field having been a matter of doubt as to whether it is really such or a dull splint coal, a specimen of it was selected for analysis, which appeared fairly to represent the bone coal of all the Harlan field. The test shows the specimen to be better than the average of the bed at this mine and generally quite as good. The analysis follows:

Analysis of "Bone" Coal.

		Coal Air Dried	Coal Moisture Free	Coal Moisture and Ash Free
Proximate Analysis	Moisture	1.33		
	Volatile matter	37.95	38.46	40.02
	Fixed carbon	56.88	57.65	59.98
	Ash	3.84	3.89	
		100.00	100.00	100.00
	Sulphur	0.69	0.70	0.73

The hardness of this coal along with its good composition should tend to enhance the value of the whole.

In the cut at the head of the incline from this mine the following (estimated) section is exposed:

Massive sandstone	20 ft.
Harlan coal bed.	
Fire-clay	2″ to 12″
Massive sandstone	15 ft.
Fire-clay and shale	1 to 2 ft.
Massive sandstone	5 ft.

In the branch, up from the mine, a coal 6 inches thick appears in shale at altitude 1465.

Farther up a prospect on the left shows, under massive sandstone, 11 inches of coal below which is 2 feet of shale and then more coal.

Still farther up, on a left branch, a 1-yard entry gives 29 inches of coal under 10 inches of shale, the whole enclosed by sandstone and at altitude 1745. This is probably next under the Low Splint bed.

Again, farther up and on and at the main branch, ¾ mile up it, is the following exposure:

Low Splint Bed.

Sandstone.	
Shale	2½ ft.
Coal	8″
Clay	2″
Coal (over)	30″
Altitude, 1795.	

The bottom coal was in part covered and showed some splint coal.

YOKUM CREEK.

On the right, 8½ miles up Clover fork. Altitude of mouth by recent levels, 1285. The former altitude 1255, is used here as a base in order to harmonize with the altitudes of Bulletin 13.

Buck Branch.—On the right, ¼ mile up Yokum creek. Altitude of mouth, 1260.

On the right, ½ mile up the branch, at the mouth of a long entry is the following section:

Leonard Bed.

Sandy shale	5 ft.
Black slate	3″
Coal	29″
Altitude, 1530.	

Laurel Branch.—On the right, ½ mile up. Altitude of mouth, 1280.

On the left, ¼ mile up the branch, a thin coal lies at altitude 1390, and at altitude 1400 is 1½ feet of coal.

These coals, both under sandstone roofs, are about on the horizon of the Harlan coal.

An old covered prospect on the right, ¼ mile up the branch, is probably of the Leonard bed, at altitude 1540.

On the left of a right branch, ¼ mile up Laurel branch and the same distance up the right branch, the Leonard bed is opened in a long entry, which, 2 yards in, has 32 to 35 inches of coal under 4 feet of sandstone and is at altitude 1580.

Bill Branch.—On the right (at a church), 2½ miles up Yokum creek. Altitude of mouth, 1370.

On the left, ¼ mile up the branch, a 15-yard entry into the Keokee bed shows coal 3 feet thick, with possibly 1 foot of coal hidden under 2 feet of shale and then 5 feet of sandstone. Its altitude is 1595.

Two feet of coal (of the Leonard bed) is reported in the branch 40 feet lower.

On the right of a left drain, 2⅞ miles up Yokum creek, a prospect shows the Leonard bed to have 24 inches of coal under 8 inches of cannel slate and then 2 feet of shaly sandstone. Its altitude is 1560.

Nearly over the preceding is a prospect with the following section:

Keokee Bed.

Sandstone.	
Shale	2½ ft.
Coal	6″
Shale	1″
Coal	37″

Altitude, 1605.

Cove Branch.—On the left, 3 miles up Yokum creek. Altitude of mouth, 1385.

On the left, ⅛ mile up the branch, an entry gives the following section 10 yards in:

Keokee Bed.

Shale.	
Coal	6″
Clay	1″
Coal	40″
Fire-clay	12″ or more.

Altitude, 1575.

The altitudes given indicate a southerly dip from the preceding branch, but as the prevailing dip is northward, a barometric error in ascertaining altitudes is probable.

On a left branch and ¼ mile up Cove branch, a closed prospect shows coal at altitude 1910.

Again on the left an old prospect shows thin coal at altitude 2130. This is about the horizon of the Dean coal.

On the left, ½ mile up, a wet entry shows a 4-foot coal bed, with a foot of parting included, at altitude 2480. This seems to be one split of the Limestone bed with other splits probably below it.

Splint coal, probably of the High Splint bed, has been opened at the head of the branch.

On the right, 4 miles up Yokum creek and 10 feet above it, 8 inches of coal under sandstone lies at altitude 1470.

In a right drain, 100 yards farther up, 11 inches of coal under 30 feet of sandstone is exposed at altitude 1565.

Tn the left, farther up the drain, a 10-yard entry gives the following 3 yards in:

Keokee Bed.

Laminated Sandstone	1 ft.
Shale	1 ft.
Coal	3″
Shale	1″
Coal	40″

Altitude, 1650.

Coal Branch.—On the right, 4½ miles up Yokum creek. Altitude of mouth, 1500.

On the right, ⅛ mile up the branch, the Leonard coal is opened in a 4-yard entry, giving about 28 inches of coal about half way in, under 2 feet of black slate and then sandstone, at altitude 1610.

Strickneck Branch.—On the right, 4¾ miles up Yokum creek. Altitude of mouth, 1520.

On the right, ¼ mile up, a long entry gives the following bed section 4 yards in:

Keokee Bed.

Shale with sandstone	5 ft.
Coal	8″
Shale	3 ft.
Coal and shale	6″
Splint coal	11″
Coal	29″

Altitude, 1635.

TURNER CREEK.—On the left, 5½ miles up Yokum creek. Altitude of mouth, 1575.

A 22-inch coal at the mouth of the creek, doubtfully referred formerly to the Leonard bed, is now proven of the Leonard by an entry 12 yards long, into the Keokee bed, on the left ⅛ mile up Turner creek. At its mouth the entry has 50 inches of coal under 2 to 3 feet of clay and then sandstone, and is at altitude 1610.

On the right at the forks of Turner creek, 1½ miles up, wet entries show at outcrop 2½ feet of coal, the bed being probably 4 to 5 feet thick and under sandstone. It is called the Eldridge coal, but flint fire-clay, 4 inches thick, in the dump proves it of the Dean bed. Its altitude is 2190.

On the right, 2 miles up Turner creek (½ mile up the right fork from the Eldridge entries), the Blevins coal, so called, has the following bed section 4 yards in a long entry:

High Splint Bed.

Cliff sandstone	25 ft.
Coal	51″

Altitude, 2855.

The lower half of the bed is of splint coal. The sandstone above it forms a prominent cliff about the head of the creek. The area is good, as the hills appear to be about 200 feet higher and with rounded tops.

At the John Pace store, 5⅝ miles up Yokum creek, the former questionable Leonard coal can now be certainly so correlated as such through the later opening of the Keokee coal directly above it.

From altitudes given, there appears to be a dip of strata up Yokum creek, but this is hardly probable above

Pounding Mill branch, excepting in local rolls where the direction of the stream is nearly parallel to the strike.

On the left, by the road, 13⅜ miles up Clover fork, a 15-yard entry is beside the opening reported in Bulletin No. 13. This gives, half way in, the following bed section:

Harlan Bed.

Sandstone	5 ft.
Coal	4″
Shale	7 ft.
Coal	4″
Shale	6″
Coal	43″

Altitude, 1410.

LITTLE BRANCH.

On the right, 14⅞ miles up Clover fork. Altitude of mouth 1385.

On the right, ¼ mile up the branch, a 3-yard entry has the following bed section:

Leonard Bed.

Shaly sandstone	5 ft.
Black slate	1 ft.
Coal	18″
Shale	2″
Coal	15″

Altitude, 1580.

On the left of Clover fork, opposite the mouths of Little branch and Seagrave creek, a 6-yard entry gives the following section at its mouth:

Harlan Coal.

Sandstone.	
Shale	7 ft.
Coal	4″
Shale	5″
Coal	43″

Altitude, 1420.

SEAGRAVE CREEK.

On the right, 14⅞ miles up Clover fork. Altitude of mouth, 1385.

The opening formerly reported on the right, ⅛ mile up this creek, is now a 25 yard entry with 41 inches of coal without parting, as measured half way in, under 7 feet of shale. Its altitude is 1410.

JERRY FORK.—On the left, ¾ mile up Seagrave creek. On the right, 1 mile up the fork, a 1-yard entry gives the following:

High Splint Bed.

Massive sandstone	5 ft.
Clay	5″
Splint coal	70″

Altitude, 2730.

On the right, 1⅛ miles up, an unfinished prospect gives the same bed with 63 inches of coal under shale and at altitude 2730.

On the right, 1½ miles up, a prospect gives the Cornett bed with 46 inches of coal under 2 feet of shale and at altitude 2665.

These coals have ample area for mining, the gap between Jerry fork and Sam Bowen branch to the east being at altitude 2950, and the peaks of spurs in the vicinity some 250 feet still higher.

LAUREL BRANCH.

On the right, 17¼ miles up Clover fork. Altitude of mouth, 1450. (By recent levels 1480.)

On the right, ¾ mile up the branch, a 10-yard entry, still in much weathered coal, gives the following section half way in:

Cornett (?) Bed.

Black slate.	
Coal	51″
Shale	3″
Coal	4″

Altitude, 2700.

The altitude was obtained without satisfactory check on the barometer, but the small proportion of splint coal visible in the bed, its roof, and the appearance of the sandstone higher up and of the topography along the mountain there all indicate the Cornett bed.

SAM BOWEN BRANCH.

On the right, 17¾ miles up Clover fork. Altitude of mouth, 1465.

On the right, 1 mile up the branch, a 2-yard entry gives the following section:

Cornett Bed.

Broken sandstone	5 ft.
Earth	6″
Coal	46″

Altitude, 2655.

Higher up a prospect gives the following found heretofore in several places about the head of Clover fork:

Shale.	
Coal	12″
Clay	2″
Coal	9″

Altitude, 2715.

Still higher is the following prospect:

High Splint Bed.

Sandstone	50 ft.
Laminated sandstone	10 ft.
Coal	4½ ft.

Altitude, 2735.

The top 6 inches of the bed is block coal and the remainder splint.

At Jasper N. Holmes', 27¼ miles up Clover fork, 100 yards up stream from his entry reported in Bulletin 13, beside the road, is a later 20-yard entry of the following section 6 yards in:

Leonard Bed.

Sandstone.	
Coal	14″
Clay	2″
Coal	11″
Shale	8″
Coal	1″
Shale	4″
Coal	4″
Clay	2″
Coal	16″
Altitude (present basis), 1870.	
Altitude (by recent levels), 1905.	

The total coal thickness is nearly equal to that of the old entry, but there are more partings in this one.

The opening reported in Bulletin 13, on the left, 31¼ miles up Clover fork, is now an electrically operated mine, "No. 4," of the Stonega Coal & Coke Company. A sample of the coal was taken from the No. 3 butt right entry, where the bed section is as follows:

Keokee Bed.

Slate	6 ft.
Coal	49″
Clay	5″
Coal	4″
Slate.	

The 49-inch seam only was sampled, the lower 4-inch seam being generally undisturbed in the mine. The slate roof is said to be 6 feet thick. The coal is delivered through Little Black Mountain to tipple in Virginia.

Analysis of the sample is given in No. 17 of table of analyses.

On the right, 31⅜ miles up Clover fork, the same company has its No. 1 mine, from which a sample was taken at room 20 of the 4th right entry, where the bed section is as follows:

Keokee Bed.

Draw slate	8 to 12″
Coal	43″
Slate.	
Altitude, 2185.	

Analysis of the sample is given in No. 18 of table of analyses.

POOR FORK

The dip of strata southward from the lower half of Poor fork makes mining in Big Black Mountain generally more profitable along Clover fork; hence the development on that side and lack of it on the lower part of Poor fork. The few new openings found are given following.

In the hill on the left at the mouth of English creek, 3½ miles up Poor fork, from the road by the railroad tunnel upper end, the following section was obtained, the strata dipping under Poor fork at the rate of some 10 to 15 degrees:

Shale	10 ft.
Coal	22″
Fire-clay.	
Sandstone	40 ft.
Coal	6″
Shale	6″
Clay	6″
Sandstone	30 ft.

On the right, 6¼ miles up and 20 feet above Poor fork, a wet entry under 20 feet of sandstone has 19 inches of coal at altitude 1250. The pitch of strata southward is considerable here.

On the left, 6½ (?) miles up and at altitude 1250, a prominent coal stain in the road appears likely to be of the same bed as the preceding, but the southward dip may carry this coal far below the other.

On the right, 7 (?) miles up and 20 feet above Poor fork, a wet entry with 10 degrees dip into the mountain has, under 20 feet of laminated sandstone, possibly 3 feet of coal. This is, with little reason to doubt, the same as the 19 inches of coal ½ mile below.

What seems to be the same bed is opened again on the right in a 20-yard entry on the right, ¼ mile below Nolansburg station and 55 feet above Poor fork. The bed section, 3 yards in follows:

Sandstone	15 ft.
Coal	12″
Shale	1″
Coal	19″
Black slate.	
Altitude, 1330.	

The southward dip here is about 10 degrees, and the coal evidently the same as the Saylor coal, 11 miles up, of Bulletin No. 13.

On the right, 12⅜ miles up Poor fork, is a 5-yard entry dipping 2 to 3 degrees southward, which has the following bed section 2 yards in:

River Coal Bed.

Sandstone	20 ft.
Laminated sandstone	2 to 5 ft.
Coal	9″
Shale	3″
Coal	7″
Shale	3″
Coal	18″
Black slate	3″
Altitude, 1330.	

Contrary to that in the entry below Straight branch (see Bulletin No. 13, p. 147), this coal looks bright and rich, but the two are like in section and in their irregular cleavage. This is the last appearance of this bed on the right of Poor fork.

CLOVER GAP BRANCH.

On the right, 12½ miles up Poor fork. Altitude of mouth, 1305.

Recent levels have proven the altitude at the mouth of Big Looney creek, as obtained by barometer from across Big Black Mountain, to be about 110 feet too high.

All Poor fork altitudes as given in Bulletin No. 13 (excepting near the mouth of Poor fork) are therefore too high. Relative heights, however, are presumably nearly correct. Assuming a gradual increase of error up stream from none at the mouth of Poor fork, the error at Clover Gap branch amounts to about 60 feet excess, which for comparison with Clover fork altitudes should be deducted from the altitudes given for this branch, and correspondingly for other branches.

On the left, ¼ mile up the branch, an incomplete prospect shows 26 inches of coal under 5 feet of clay at altitude 1380.

At ½ mile up a thin coal appears at altitude 1520.

At the face of a 1-yard entry, ¾ mile up and 10 feet above the branch, is the following:

Leonard Bed.

Laminated sandstone	10 ft.
Coal	3″
Bituminous shale	1″
Coal	2″
Bituminous shale	½″
Coal	6″
Shale	2″
Coal	3″
Shale	1″
Coal	13″
Shale	3″
Coal	2″
Shale	4″
Coal	8″
Altitude, 1690.	

On the right, 100 yards farther up, 15 feet above the branch, a 6-yard entry gives the following section 2 yards in:

Keokee Bed.

Shaly sandstone.	
Shale	2½ ft.
Coal	12″
Shale	16″
Coal	41″
Altitude, 1750.	

SILAS HOLLOW.

On the right, opposite Dione, 16 miles up Poor fork. Altitude of mouth, 1355.

In this branch, ¼ mile up, is a foot of limestone at altitude 1475.

About 100 yards farther up is the following exposure, having a pitch southward of 10 to 15 degrees:

Laminated sandstone	10 ft.
Limestone	1 ft.
Laminated sandstone	5 ft.
Limestone	1 ft.
Shaly sandstone	10 ft.

Altitude, 1495.

On the right, ⅜ mile up and 10 feet above the branch, is a long entry on a 10 degree pitch, with the following bed section 1 yard in:

Laminated sandstone	10 ft.
Black slate	9″
Coal	33″

Altitude, 1545.

On the right, ½ mile up and 30 feet above the branch, a prospect, in strata nearly level, gives the following:

Massive sandstone	3 ft.
Black slate	1 ft.
Coal	15″

Altitude, 1595.

On the right, ⅝ mile up and 30 feet above the branch, is the following:

Shaly sandstone	20 ft.
Coal	12″

Altitude, 1655.

The gap at the head of the branch is at altitude 2900.

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FLAT BRANCH.

On the right, 16¼ miles up Poor fork. Altitude of mouth, 1355.

On the left, ½ mile up the branch (left fork), a long entry on the strike of a possible 15 degree pitch gives the following bed section 10 yards in:

Harlan (?) Bed.

Shale	8 ft.
Coal	44″

Altitude, 1640.

The upper 10 inches is block coal. In the next 16 inches are 4 seams of mother coal and the 18 inches at bottom are of a rather hard block coal.

At the head of the left fork, 1 mile up, is a covered prospect at altitude 2690.

Above this prospect is another, incomplete, with the following section:

Cornett (?) Bed.

Earth.	
Coal	5″
Shale	6″
Coal	1″
Shale	4″
Coal	35″

Altitude, 2735.

The lower 6 inches was covered and not seen. Being 45 feet above the coal of the prospect at 2690 would lead to the assumption that this is of the High Splint bed, but neither the bed section nor the character of the coal permit it. If not of the Cornett bed, which may be at altitude 2690, then it is probably the bed, unusually thick here, about 30 feet under the High Splint bed.

The top of the mountain here is at altitude 3080, and a high peak to the east some 200 feet higher, giving the High Splint bed ample area for mining.

On the left, 17¼ miles up Poor fork, opposite the mouth of Eastep branch, a rock railway cut developed coal, probably of the River coal bed, said to be 4 feet thick. On a steep pitch, the undermined roof rock broke and slipped and prevented further access to the coal.

CLOVER LICK CREEK.

On the right, 22 miles up Poor fork. Altitude of mouth, 1525. (By recent levels, 1415.)

The coal, 1⅛ miles up Clover Lick creek, ¼ mile up a left drain, doubtfully referred to the Leonard bed, is now established as such. The coal is 60 inches thick, 20 yards in a long entry at altitude 1740.

Above the entry a prospect gives 24 inches of coal at altitude 1780.

Above the latter a closed prospect gives the altitude of the Keokee bed, 1800.

The Harlan bed shows its top at creek level, 1½ miles up, at altitude 1595.

On the left, 2⅛ miles up Clover Lick creek, on G. Eversole's land, a closed prospect at altitude 1680, is probably the lower one of the Eversole coals given in Bulletin No. 13, page 172, 60 inches of coal with ½ and 1 inch partings. Some black slate and splint coal remain in the dump. It is of the Keokee bed.

At 3¼ miles up is the upper Eversole coal, 38 inches thick. This is now a long wet entry having the following bed section 20 yards in:

McKnight Bed.

Shaly sandstone	3 ft.
Shale	2 ft.
Coal	8″
Bony coal	16″
Coal	6″
Bone coal	8″
Shale and bone coal	2 ft.

Altitude, 1765.

Cave Branch.—On the right, 2¼ miles up Clover Lick creek. Altitude of mouth, 1645.

On the right, ¼ mile up the branch, is an entry giving the upper coal of figure 204, page 173, Bulletin No. 13, 59 inches of coal and two small partings. This is of the McKnight bed and its altitude is 1740, not 1840 as there given.

The lower coal of the same figure is on the right of Clover Lick creek (with path, ⅛ mile, leading to it from Cave branch). It is of the Keokee bed (without black slate in the dump) and its altitude is 1690, instead of 1790 as given. These altitude corrections have no relation to the recent levels. They were both put 100 feet too high above the mouth of the creek.

On the left, 2⅜ miles up, a partly closed prospect, gave the following:

Keokee Bed and Rider.

Shaly sandstone	5 ft.
Shale	3 ft.
Black slate	7″
Coal	28″
Shale and clay	8 ft.
Coal (more or less)	3 ft.

Altitude, 1685.

Peel Branch.—On the left, 3⅜ miles up Clover Lick creek. Altitude of mouth, 1685.

At the branch, 100 yards up it, is the following:

Keokee Rider.

Sandstone	10 ft.
Shale	2 ft.
Black slate	1 ft.
Coal	23″
Shale	4″
Coal	3″

Altitude, 1700.

The parting and lower seam of coal were under water and felt rather than seen. The sandstone covering is 60 feet thick just above Peel branch.

Pits sunk in the creek bottom, 3⅞ miles up it, at altitude 1720, show in the dump some splint coal but no black slate, indicating the Keokee bed there.

On the right, 4 miles up, is the following:

Keokee Rider.

Massive sandstone	3 ft.
Shale	2 ft.
Black slate	6″
Coal	26″
Shale	5 ft.
Covered (to creek)	5 ft.

Altitude, 1740.

On the right, 5 miles up, is 2½ feet of coal between sandstones 15 to 20 feet or more thick. This coal at altitude 1950, may be of the McKnight bed.

BIG LOONEY CREEK.

On the right, 22½ miles up Poor fork. Altitude of mouth (on present basis), 1535. (By recent levels about 1425.)

A bench mark on the Poor fork bridge abutment at the Poor fork station gives the altitude there as 1430.

For approximately true altitudes in Bulletin No. 13 and in this report those given as about the mouth of Clover Lick and Big Looney creek should be reduced 110 feet. On those of Big Black mountain at the heads of the creeks no reduction should be made, but those of intermediate points should be reduced proportionately to their distance from the extremes. As relative heights are usually all that are required this figuring will rarely be necessary.

On the right, 1¼ miles up Big Looney creek, the Gilliam coal of page 180, Bulletin No. 13, was found in an 8-yard entry to have 56 inches of coal without parting, the upper 10 inches of it splint coal, thus proving it to be of the Keokee bed.

On the left, 1⅝ miles up, the Looney Creek Coal Company is mining the Slick Rock Branch coals, with openings all together.

As yet only the Keokee coal is shipped, the remarkably fine appearance of the lump coal, largely splint coal, deserving comment.

The entry into the Leonard bed being but 20 yards in did not assure a fair sample, but the covering is probably over 60 feet and the coal sound there. A test from farther in will hardly give better results than the following of an analysis of sample taken from the face. The bed section at the face follows:

Leonard (B) Bed.

Slate.
Coal ..... 36″
Bone coal ..... 1″
Coal ..... 4″
Fire-clay.
Altitude, 1830.

Analysis of this sample is given in No. 19 of the table of analyses.

A sample was taken from the airway from No. 5 room of the 1st left entry of the mine into the Keokee bed, with the bed section as follows:

Keokee (C) Bed.

Sandstone.
Slate (reported) ..... 4 ft.
Coal ..... 17″
Shale ..... 1″
Coal ..... 45″
Shale.
Altitude, 1860.

The shale parting was excluded from the sample.

For analysis see No. 20 of table of analyses.

Mining in the McKnight bed is but just begun. A sample was taken from the face of the entry, 40 yards in, which may not give as good results as from coal farther in, but comparing those obtained with others of this bed in this vicinity, little improvement is to be expected. The bed section is as follows:

McKnight (D) Bed.

Slate.
Coal ..... 41″
Fire-clay.
Altitude, 1895.

Although no bone coal was detected in sampling, the analysis shows the impurity in the coal.

Anlysis is given in No. 21 of table of analyses.

On the right, 2⅜ miles up Big Looney creek, at Benham, the Wisconsin Steel Company has its mines, No. 1 and No. 2, in its "C seam," with their mouths at the same point. There the coal is about 5½ feet thick with 0 to 4 inches of draw slate. The latter varies considerably in the mine but the coal appears to be very nearly uniform throughout. A parting of maximum ¼ inch is reported but not seen.

A sample was taken from the No. 2 mine (which crosses under Maggard branch) about a mile in, at the

face of the 3rd right entry, the results of analysis and bed section following:

Keokee (C) Bed.

Sandstone.
Coal .....66"
Shale.
Altitude, 1840.

Analysis is given in No. 22 of table of analyses.

In the No. 1 mine a sample was taken from the air course of room 2, No. 10 left entry. The bed section is as follows:

Keokee (C) Bed.

Slate.
Splint coal .....18"
Coal .....36"
Fire-clay.
Altitude, 1840.

Analysis is given in No. 23 of table of analyses.

The 408 coke ovens of the company, all in operation, leave a good proportion of lump coal for shipment, and this, like that from the Looney Creek Coal Company mine, is noteworthy for its fine appearance. The coke also is good looking, being hard, bright and of good texture though perhaps a little too compact. A sample of it taken for analysis gave results shown in No. 24 of the table of analyses.

On the right, 2¼ miles up Big Looney creek, using the same tipple as the Keokee coal, is the "D seam" mine of the same company, understood about to be (at least, temporarily) abandoned. Following is a section at the mouth of the mine:

McKnight Bed.

Shale .....10 ft.
Coal .....36"
Shale ..... 2"
Coal .....10"
Altitude, 1910.

A sample of the coal from the main entry at the 6th rigth entry gave the bed section following:

McKnight (D) Bed.

Slate.
Coal .....38"
Shale ..... 3"
Bone coal and shale.. 5"
Fire-clay.
Altitude (at mouth), 1910.

The 38-inch seam only was sampled.

For analysis see No. 25 of table of analyses.

The McKnight bed, which is 35 feet above the Keokee at the Looney Creek Coal Company mines, is said to range from 60 to 120 feet above the Keokee bed here, as ascertained by levels within the mines.

Altitudes as given in the remainder of this report are, presumably, 110 feet higher than the recent levels make them.

In a field on the right, 24¾ miles up Big Looney creek, a heavy stain of coal, with possible 20% pitch, is exposed at altitude 1590. This is probably of the same bed as that previously reported 23¾ miles up.

WILSON CREECH HOLLOW (CHARLES BRANCH)

On the right, 25 miles up Poor fork. Altitude of mouth, 1570.

The Keokee coal, over 5 feet thick on this branch, has been previously reported.

On the left, ½ mile up (on the middle one of three forks), the Leonard coal shows about 4 feet thick in a wet entry, under 4 feet of clay and then sandstone, at altitude 1965. The interval between the two beds is probably greater than the 10 feet the altitudes indicate.

On a right branch 26 miles up Poor fork, an entry on the right, ¾ mile up the branch, gives 42 inches of coal under sandstone at altitude 1960.

On the left, opposite the preceding, a closed entry is at altitude 2015. These appear to be of the Leonard and Keokee beds.

COLDIRON BRANCH.

On the right, 28 miles up Poor fork. Altitude of mouth, 1600.

The two higher coals on this branch, reported by Mr. Thruston and given in Bulletin No. 13, page 20, are ¾ mile up the branch.

ABE BRANCH.

On the left, 28½ miles up Poor fork. Altitude of mouth, 1615.

An unfinished prospect, ¼ mile up and at the branch, reported as 7 feet thick, can have not over 3 feet of coal and with over 20% pitch is evidently of no value.

On a right branch, 28¾ miles up Poor fork, on the left, ½ mile up the branch (left fork), Jesse Jenkins has a wet entry into a 4 to 4½ feet coal bed having numerous partings and 8 feet of shale covering. At altitude 1745 and with about 3% southerly dip, it is probably of the Leonard or McKnight bed.

BEECH BOTTOM HOLLOW.

On the right, 28⅞ miles up Poor fork. Altitude of mouth, 1620.

On the right, ⅛ mile up Poor fork, J. C. Eversole has an 8-yard entry with the following section, the 33 inches of coal measured at the face:

Massive sandstone	15 ft.
Coal	33″
Covered	5 ft.
Sandstone	5 ft.
Coal	6″

Altitude (of entry), 1680.

This is the last opening up Poor fork in Harlan County, the coal previously reported on Eversole branch being across the Letcher County line.

Table of Analyses

HARLAN COUNTY.

No. 1.

Laboratory number G-3756
Operator ..... Republic Coal Co.
Mine ..... Harlan Coal
Location ..... ¼ mile up Martin's Fork
Location in mine ..... Face main entry, 400 yards in
Coal ..... Harlan
Specific gravity of coal 1.262

Section of Mine.

	Feet	Inches
Roof		
Immediate Roof—Slate		
1. Block coal	.....	1½
2. Hard shale	.....	¼
3. Coal	.....	3
4. Dull splint coal	.....	2
5. Coal	.....	43
6. Shale	.....	7
7. Coal (not mined)	.....	12
Excluded from sample, Nos. 2, 6 and 7		

Analysis.

		Coal Air Dried	Coal Moisture Free	Coal Moisture and Ash Free
Proximate Analysis	Moisture	1.54	.....	.....
	Volatile matter	37.37	37.96	39.15
	Fixed carbon	58.09	59.00	60.85
	Ash	3.00	3.04	.....
		100.00	100.00	100.00
Sulphur		0.94	0.95	0.98
Calorific Value Determined	B. T. U.	14100	14300	14770

HARLAN COUNTY.

No. 2.

Laboratory number G-3748
Operator ..... Wallens Creek Coal Co.
Mine ..... No. 2
Location ..... ¼ mile up Martin's Fork
Location in mine ..... Main entry, 500 yards in
Coal ..... Harlan
Specific gravity of coal 1.272

Section of Mine.

	Feet	Inches
Roof—Slate		
Immediate Roof—Slate		
1. Coal	.....	2
2. Dull splint coal	.....	1
3. Coal	.....	45
Floor—fire-clay.		
Excluded from sample, none.		

Analysis.

		Coal Air Dried	Coal Moisture Free	Coal Moisture and Ash Free
Proximate Analysis	Moisture	1.32	.....	.....
	Volatile matter	37.28	37.78	39.05
	Fixed carbon	58.22	59.00	60.95
	Ash	3.18	3.22	.....
		100.00	100.00	100.00
Sulphur		0.61	0.62	0.64
Calorific Value Determined	B. T. U.	14390	14580	15070

HARLAN COUNTY.

No. 3.

Laboratory number G-3749
Operator ..... Wallens Creek Coal Co.
Mine ..... No. 1
Location ..... ¼ mile up Martin's Fork
Location in mine ..... Entry No. 2, room 53
Coal ..... Harlan
Specific gravity of coal 1.279

Section of Mine.

	Feet	Inches
Roof—Sandstone		
Immediate Roof—Laminated Sandstone		6
1. Coal	.....	2½
2. Clay	.....	½
3. Coal	.....	52
4. Shale (reported)	.....	18 to 24
5. Coal (reported)	.....	12 to 20
Excluded from sample, Nos. 4 and 5		

Analysis.

		Coal Air Dried	Coal Moisture Free	Coal Moisture and Ash Free
Proximate Analysis	Moisture	1.45	.....	.....
	Volatile matter	36.72	37.26	38.88
	Fixed carbon	57.73	58.58	61.12
	Ash	4.10	4.16	.....
		100.00	100.00	100.00
Sulphur		0.90	0.91	0.95
Calorific Value Determined	B. T. U.	14110	14320	14940

HARLAN COUNTY.

No. 4.

Laboratory number G-3747
Operator ..... R. C. Tway Coal Co.
Mine ..... Harlan Coal
Location ..... ½ mile up Martin's Fork
Location in mine ..... Room 11, 3d left entry
Coal ..... Harlan
Specific gravity of coal 1.276

Section of Mine.

	Feet	Inches
Roof—Slate		
Immediate Roof—Shale—Reported		14
1. Coal	.....	5
2. Dull splint coal	.....	1
3. Coal	.....	43
4. Shale	.....	2
5. Coal	.....	1
6. Shale	.....	6
7. Coal	.....	13
Floor—fire-clay.		
Excluded from sample, Nos. 4, 5 and 6.		

Analysis.

		Coal Air Dried	Coal Moisture Free	Coal Moisture and Ash Free
Proximate Analysis	Moisture	1.25	.....	.....
	Volatile matter	34.83	35.27	36.27
	Fixed carbon	61.19	61.97	63.73
	Ash	2.73	2.76	.....
		100.00	100.00	100.00
Sulphur		0.80	0.81	0.83
Calorific Value Determined	B. T. U.	14390	14570	14990

HARLAN COUNTY.

No. 3.

Laboratory number G-3749
Operator ..... Wallens Creek Coal Co.
Mine ..... No. 1
Location ..... ¼ mile up Martin's Fork
Location in mine ..... Entry No. 2, room 53
Coal ..... Harlan
Specific gravity of coal 1.279

Section of Mine.

	Feet	Inches
Roof—Sandstone		
Immediate Roof—Laminated Sandstone		6
1. Coal	.....	2½
2. Clay	.....	½
3. Coal	.....	52
4. Shale (reported)	.....	18 to 24
5. Coal (reported)	.....	12 to 20
Excluded from sample, Nos. 4 and 5		

Analysis.

		Coal Air Dried	Coal Moisture Free	Coal Moisture and Ash Free
Proximate Analysis	Moisture	1.45	.....	.....
	Volatile matter	36.72	37.26	38.88
	Fixed carbon	57.73	58.58	61.12
	Ash	4.10	4.16	.....
		100.00	100.00	100.00
Sulphur		0.90	0.91	0.95
Calorific Value Determined	B. T. U.	14110	14320	14940

HARLAN COUNTY.

No. 4.

Laboratory number G-3747
Operator ..... R. C. Tway Coal Co.
Mine ..... Harlan Coal
Location ..... ½ mile up Martin's Fork
Location in mine ..... Room 11, 3d left entry
Coal ..... Harlan
Specific gravity of coal 1.276

Section of Mine.

	Feet	Inches
Roof—Slate		
Immediate Roof—Shale—Reported		14
1. Coal	.....	5
2. Dull splint coal	.....	1
3. Coal	.....	43
4. Shale	.....	2
5. Coal	.....	1
6. Shale	.....	6
7. Coal	.....	13
Floor—fire-clay.		
Excluded from sample, Nos. 4, 5 and 6.		

Analysis.

		Coal Air Dried	Coal Moisture Free	Coal Moisture and Ash Free
Proximate Analysis	Moisture	1.25	.....	.....
	Volatile matter	34.83	35.27	36.27
	Fixed carbon	61.19	61.97	63.73
	Ash	2.73	2.76	.....
		100.00	100.00	100.00
Sulphur		0.80	0.81	0.83
Calorific Value Determined	B. T. U.	14390	14570	14990

HARLAN COUNTY.

No. 5.

Laboratory number G-3745
Operator ..... Wilson-Berger Coal Co.
Mine ..... Upper bench of Smith Coal
Location ..... 3½ miles up Martin's Fork
Location in mine ..... Face of main entry, 20 yards in
Coal ..... Upper bench of Smith Coal
Specific gravity of coal 1.264

Section of Mine.

		Feet	Inches
Roof—Sandstone			
Immediate Roof—Shaly Sandstone			
1. Block coal	Upper bench		4
2. Shale			3
3. Coal			36
4. Shale			¼ to 1
5. Coal			16
6. Clay			6 to 8
7. Impure coal and clay			6 to 8
8. Coal, lower bench			46
Floor—fire-clay.			
Excluded from sample, Nos. 2, 4, 6, 7 and 8.			

Analysis.

		Coal Air Dried	Coal Moisture Free	Coal Moisture and Ash Free
Proximate Analysis	Moisture	2.11	.....	.....
	Volatile matter	38.65	39.48	41.31
	Fixed carbon	54.91	56.10	58.69
	Ash	4.33	4.42	.....
		100.00	100.00	100.00
Sulphur		1.03	1.05	1.10
Calorific Value Determined	B. T. U.	13730	14030	14670

HARLAN COUNTY.

No. 6.

Laboratory number G-3746
Operator ..... Wilson-Berger Coal Co.
Mine ..... Lower bench of Smith Coal
Location ..... 3½ miles up Martin's Fork
Location in mine ..... Face of main entry, 20 yards in
Coal ..... Lower bench of Smith Coal
Specific gravity of coal 1.258

Section of Mine.

		Feet	Inches
Roof—Sandstone			
Immediate Roof—Sandstone			
1. Block coal	Upper bench		4
2. Shale			3
3. Coal			36
4. Shale			¼ to 1
5. Coal			16
6. Clay			6 to 8
7. Impure coal and clay			6 to 8
8. Coal, lower bench			46
Floor—fire-clay.			
Excluded from sample, all but No. 8.			

Analysis.

		Coal Air Dried	Coal Moisture Free	Coal Moisture and Ash Free
Proximate Analysis	Moisture	1.94	.....	.....
	Volatile matter	36.67	37.40	40.14
	Fixed carbon	54.68	55.76	59.86
	Ash	6.71	6.84	.....
		100.00	100.00	100.00
Sulphur		0.61	0.62	0.67
Calorific Value Determined	B. T. U.	13620	13890	14910

HARLAN COUNTY.

No. 7.

Laboratory number G-3744
Operator ..... Wilson-Berger Coal Co.
Mine ..... Harlan Coal
Location ..... 3½ miles up Martin's Fork
Location in mine ..... At 3d left turn, 120 yards in
Coal ..... Harlan
Specific gravity of coal 1.27

Section of Mine.

	Feet	Inches
Roof—Sandstone		
Immediate Roof—Sandstone		
1. Coal	.....	4
2. Knife edge parting	.....	.....
3. Coal	.....	4
4. Knife edge parting	.....	.....
5. Coal	.....	10
6. Dull splint coal	.....	1
7. Coal	.....	18
8. Bony coal	.....	1
9. Coal	.....	5
Total	3	7
Floor—sandstone.		
Excluded from sample, none.		

Analysis.

		Coal Air Dried	Coal Moisture Free	Coal Moisture and Ash Free
Proximate Analysis	Moisture	1.59	.....	.....
	Volatile matter	38.57	39.19	40.64
	Fixed carbon	56.34	57.25	59.36
	Ash	3.50	3.56	.....
		100.00	100.00	100.00
Sulphur		0.78	0.79	0.82
Calorific Value Determined	B. T. U.	14220	14450	14980

HARLAN COUNTY.

No. 8.

Laboratory number G-3750
Operator ..... Harlan Gas Coal Co.
Mine ..... Harlan Coal
Location ..... ⅝ mile up Clover Fork
Location in mine ..... Face of main entry, 650 yards in
Coal ..... Harlan
Specific gravity of coal 1.288

Section of Mine.

	Feet	Inches
Roof—Sandstone		
Immediate Roof—Draw Slate		6 to 18
1. Coal	.....	1
2. Dull splint coal	.....	4
3. Coal	.....	44
4. Shale	.....	9
5. Coal (not mined)	.....	15
Floor—fire-clay.		
Excluded from sample, Nos. 4 and 5.		

Analysis.

		Coal Air Dried	Coal Moisture Free	Coal Moisture and Ash Free
Proximate Analysis	Moisture	1.56	.....	.....
	Volatile matter	37.17	37.76	38.93
	Fixed carbon	58.35	59.27	61.07
	Ash	2.92	2.97	.....
		100.00	100.00	100.00
Sulphur		0.78	0.79	0.82
Calorific Value Determined	B. T. U.	14080	14300	14720

HARLAN COUNTY.

No. 9.

Laboratory number G-3751
Operator ..... Rex Coal Co.
Mine ..... Harlan Coal
Location ..... 1¾ miles up Clover Fork
Location in mine ..... 4th right entry, room 34
Coal ..... Harlan
Specific gravity of coal 1.282

Section of Mine.

	Feet	Inches
Roof		
Immediate Roof—Slate		12+
1. Coal	.....	5
2. Dull splint coal	.....	2
3. Coal	.....	36
Floor—fire-clay.		
Excluded from sample, none.		

Analysis.

		Coal Air Dried	Coal Moisture Free	Coal Moisture and Ash Free
Proximate Analysis	Moisture	1.59	.....	.....
	Volatile matter	36.92	37.51	38.49
	Fixed carbon	59.01	59.97	61.51
	Ash	2.48	2.52	.....
		100.00	100.00	100.00
Sulphur		0.69	0.70	0.72
Calorific Value Determined	B. T. U.	14120	14350	14720

HARLAN COUNTY.

No. 10.

Laboratory number G-3753
Operator ..... Clover Fork Mining Co.
Mine ..... Harlan Coal
Location ..... 1⅞ miles up Clover Fork
Location in mine ..... Main entry at 10th left
Coal ..... Harlan
Specific gravity of coal 1.278

Section of Mine.

	Feet	Inches
Roof		
Immediate Roof—Slate		
1. Coal	.....	4
2. Dull splint coal	.....	2
3. Coal	.....	42
Floor—fire-clay.		
Excluded from sample, none.		

Analysis.

		Coal Air Dried	Coal Moisture Free	Coal Moisture and Ash Free
Proximate Analysis	Moisture	1.36	.....	.....
	Volatile matter	38.96	39.49	40.50
	Fixed carbon	57.24	58.03	59.50
	Ash	2.44	2.48	.....
		100.00	100.00	100.00
Sulphur		0.67	0.68	0.70
Calorific Value Determined	B. T. U.	14360	14560	14930

HARLAN COUNTY.

No. 11.

Laboratory number G-3752
Operator ..... Golden Ash Coal Co.
Mine ..... Harlan Coal
Location ..... 2¼ miles up Clover Fork
Location in mine ..... 5th left entry, room 26
Coal ..... Harlan
Specific gravity of coal 1.283

Section of Mine.

	Feet	Inches
Roof—Sandstone		
Immediate Roof—Slate		12
1. Coal	.....	9
2. Dull splint coal	.....	1
3. Coal	.....	36
Floor—clay.		
Excluded from sample, none.		

Analysis.

		Coal Air Dried	Coal Moisture Free	Coal Moisture and Ash Free
Proximate Analysis	Moisture	1.47	.....	.....
	Volatile matter	37.35	37.91	39.68
	Fixed carbon	56.77	57.62	60.32
	Ash	4.41	4.47	.....
		100.00	100.00	100.00
Sulphur		0.73	0.74	0.78
Calorific Value Determined	B. T. U.	14020	14230	14900

HARLAN COUNTY.

No. 12.

Laboratory number G-3754
Operator ..... Wallens Creek Coal Co.
Mine ..... Harlan Coal
Location ..... 4½ miles up Clover Fork
Location in mine ..... 5th right entry, room 7
Coal ..... Harlan
Specific gravity of coal 1.276

Section of Mine.

	Feet	Inches
Roof—Sandstone		
Immediate Roof—Draw Slate		15
1. Coal	.....	¼
2. Dull splint coal	.....	3
3. Coal	.....	43
Floor—clay.		
Excluded from sample, none.		

Analysis.

		Coal Air Dried	Coal Moisture Free	Coal Moisture and Ash Free
Proximate Analysis	Moisture	1.24	.....	.....
	Volatile matter	38.22	38.70	40.76
	Fixed carbon	55.56	56.26	59.24
	Ash	4.98	5.04	.....
		100.00	100.00	100.00
Sulphur		0.67	0.68	0.71
Calorific Value Determined	B. T. U.	14260	14440	15200

HARLAN COUNTY.

No. 13.

Laboratory number G-3755
Operator ..... Lick Branch Coal Co.
Mine ..... Mine No. 1, Harlan Coal
Location ..... At Coxton
Coal ..... Harlan
Specific gravity of coal 1.278

Section of Mine.

	Feet	Inches
Roof—Sandstone		
Immediate Roof—Slate		
1. Coal	.....	5
2. Dull splint coal	.....	3
3. Coal	.....	3
4. Soft clay	.....	¼
5. Coal	.....	35
Floor—shale.		
Excluded from sample, none.		

Analysis.

		Coal Air Dried	Coal Moisture Free	Coal Moisture and Ash Free
Proximate Analysis	Moisture	1.27	.....	.....
	Volatile matter	35.44	35.90	37.02
	Fixed carbon	60.31	61.08	62.98
	Ash	2.98	3.02	.....
		100.00	100.00	100.00
Sulphur		0.82	0.83	0.86
Calorific Value Determined	B. T. U.	14650	14840	15300

HARLAN COUNTY.

No. 14.

Laboratory number G-3757
Operator ..... Lick Branch Coal Company
Mine ..... No. 2
Location ..... Coxton
Location in mine ..... Room 22, 1st R. entry
Coal ..... Harlan
Specific gravity of coal 1.262

Section of Mine.

	Feet	Inches
Roof		
Immediate Roof—Slate		
1. Slate	.....	.....
2. Coal	.....	7
3. Bone or dull splint coal	.....	4
4. Coal	.....	38
5. Soft clay	.....	.....
Total	4	1
Floor—soft clay—3″ over sandstone.		
Excluded from sample, none.		

Analysis.

		Coal Air Dried	Coal Moisture Free	Coal Moisture and Ash Free
Proximate Analysis	Moisture	1.70	.....	.....
	Volatile matter	36.93	37.57	39.46
	Fixed carbon	56.67	57.65	60.54
	Ash	4.70	4.78	.....
		100.00	100.00	100.00
Sulphur		0.71	0.72	0.76
Calorific Value Determined	B. T. U.	14340	14590	15320

HARLAN COUNTY.

No. 15.

Laboratory number G-3758
Operator ..... East Harlan Coal Co.
Mine ..... Harlan Coal
Location ..... Clover Fork
Location in mine ..... 4th left entry, room 14
Coal ..... Harlan
Depth below surface ..... 200 feet
Specific gravity of coal 1.291

Section of Mine.

	Feet	Inches
Roof—Slate		
Immediate Roof—Draw Slate		4
1. Coal and shale	.....	4
2. Coal	.....	7
3. Knife edge (shale)	.....	.....
4. Coal	.....	1
5. Dull splint coal	.....	2
6. Coal	.....	1½
7. Knife edge (shale)	.....	.....
8. Coal	.....	5
9. Sulphur	.....	⅛
10. Coal	.....	35
Total	4	7⅝
Floor—fire-clay.		
Excluded from sample, Nos. 1 and 9.		

Analysis.

		Coal Air Dried	Coal Moisture Free	Coal Moisture and Ash Free
Proximate Analysis	Moisture	1.56	.....	.....
	Volatile matter	35.06	35.61	38.35
	Fixed carbon	56.36	57.26	61.65
	Ash	7.02	7.13	.....
		100.00	100.00	100.00
Sulphur		1.02	1.04	1.12
Calorific Value Determined	B. T. U.	13890	14100	15200

HARLAN COUNTY.

No. 16.

Laboratory number G-3759
Operator ..... King-Harlan Mining Co.
Mine ..... Kentucky King
Location ..... Clover Fork
Location in mine ..... 1st left entry, 60 yards in
Coal ..... Harlan
Depth below surface ..... 100 feet
Specific gravity of coal 1.288

Section of Mine.

	Feet	Inches
Roof—Sandstone		
Immediate Roof—Draw Slate		6
1. Coal	.....	8
2. Dull splint coal	.....	2
3. Coal	.....	15
4. Shale	.....	5
5. Coal	.....	9
6. Soft clay	.....	½
7. Coal	.....	20
Total	4	11½
Floor—fire-clay.		
Excluded from sample, No. 4.		

Analysis.

		Coal Air Dried	Coal Moisture Free	Coal Moisture and Ash Free
Proximate Analysis	Moisture	1.54	.....	.....
	Volatile matter	34.26	34.80	36.86
	Fixed carbon	58.69	59.61	63.14
	Ash	5.51	5.59	.....
		100.00	100.00	100.00
Sulphur		0.95	0.96	1.02
Calorific Value Determined	B. T. U.	14380	14600	15470

HARLAN COUNTY.

No 17.

Laboratory number G-3762
Operator ..... Stonega Coal and Coke Co.
Mine ..... Keokee No. 4
Location ..... Clover Fork
Location in mine ..... No. 3 Butt right
Coal ..... Keokee
Depth below surface ..... 500 feet
Specific gravity of coal 1.287

Section of Mine.

	Feet	Inches
Roof		
Immediate Roof—Slate	6	
1. Coal	.....	49
2. Clay	.....	5
3. Coal	.....	4
Total	4	10
Floor—slate.		
Excluded from sample, Nos. 2 and 3.		

Analysis.

		Coal Air Dried	Coal Moisture Free	Coal Moisture and Ash Free
Proximate Analysis	Moisture	1.45	.....	.....
	Volatile matter	38.45	39.01	40.69
	Fixed carbon	56.05	56.88	59.31
	Ash	4.05	4.11	.....
		100.00	100.00	100.00
Sulphur		1.62	1.64	1.71
Calorific Value Determined	B. T. U.	14050	14260	14870

HARLAN COUNTY.

No. 18.

Laboratory number G-3761
Operator ..... Stonega Coal and Coke Co.
Mine ..... No. 1, Keokee
Location ..... Clover Fork
Location in mine ..... 4th right entry, room 20
Coal ..... Keokee
Depth below surface ..... 500 feet
Specific gravity of coal 1.308

Section of Mine.

	Feet	Inches
Roof		
Immediate Roof—Draw Slate		8 to 12
1. Coal	.....	43
Total	.....	43
Floor—slate.		
Excluded from sample, none.		

Analysis.

		Coal Air Dried	Coal Moisture Free	Coal Moisture and Ash Free
Proximate Analysis	Moisture	1.56	.....	.....
	Volatile matter	37.35	37.94	39.62
	Fixed carbon	56.91	57.81	60.38
	Ash	4.18	4.25	.....
		100.00	100.00	100.00
Sulphur		0.73	0.74	0.77
Calorific Value Determined	B. T. U.	13750	13970	14590

HARLAN COUNTY.

No. 19.

Laboratory number G-3768
Operator ..... Looney Creek Coal Co.
Mine ..... "B" Seam (Leonard)
Location ..... Big Looney Creek
Location in mine ..... Face of main entry, 20 yards in
Coal ..... Leonard
Depth below surface ..... 30 feet
Specific gravity of coal 1.251

Section of Mine.

	Feet	Inches
Roof		
Immediate Roof—Slate		
1. Coal	.....	36
2. Bone coal	.....	1
3. Coal	.....	4
Total	3	5
Floor—fire-clay.		
Excluded from sample, none.		

Analysis.

		Coal Air Dried	Coal Moisture Free	Coal Moisture and Ash Free
Proximate Analysis	Moisture	1.85	.....	.....
	Volatile matter	37.90	38.62	39.62
	Fixed carbon	57.77	58.86	60.38
	Ash	2.48	2.52	.....
		100.00	100.00	100.00
Sulphur		0.77	0.78	0.80
Calorific Value Determined	B. T. U.	14235	14500	14880

HARLAN COUNTY.

No. 20.

Laboratory number G-3766
Operator ..... Looney Creek Coal Co.
Mine ..... "C" Seam (Keokee)
Location ..... Big Looney Creek
Location in mine ..... Airway of 1st left entry, room 5
Coal ..... Keokee
Depth below surface ..... 1000 feet
Specific gravity of coal 1.259

Section of Mine.

	Feet	Inches
Roof—Sandstone		
Immediate Roof—Slate (reported)	5	
1. Coal	.....	17
2. Shale	.....	1
3. Coal	.....	45
Total	5	3
Floor—shale.		
Excluded from sample, No. 2.		

Analysis.

		Coal Air Dried	Coal Moisture Free	Coal Moisture and Ash Free
Proximate Analysis	Moisture	1.81	.....	.....
	Volatile matter	36.74	37.42	38.13
	Fixed carbon	59.60	60.70	61.87
	Ash	1.85	1.88	.....
		100.00	100.00	100.00
Sulphur		0.63	0.64	0.65
Calorific Value Determined	B. T. U.	14360	14625	14905

HARLAN COUNTY.

No. 21.

Laboratory number G-3767
Operator ..... Looney Creek Coal Co.
Mine ..... "D" Seam (McKnight)
Location ..... Big Looney Creek
Location in mine ..... Face main entry, 40 yards in
Coal ..... McKnight
Specific gravity of coal 1.305

Section of Mine.

	Feet	Inches
Roof		
Immediate Roof—Slate		
1. Coal	.....	41
Total	3	5
Floor—fire-clay.		
Excluded from sample, none.		

Analysis.

		Coal Air Dried	Coal Moisture Free	Coal Moisture and Ash Free
Proximate Analysis	Moisture	2.62	.....	.....
	Volatile matter	36.44	37.42	39.98
	Fixed carbon	54.69	56.16	60.02
	Ash	6.25	6.42	.....
		100.00	100.00	100.00
Sulphur		0.84	0.86	0.92
Calorific Value Determined	B. T. U.	13410	13770	14720

HARLAN COUNTY.

No. 22.

Laboratory number G-3769
Operator ..... Wisconsin Steel Co.
Mine ..... "C" Seam, No. 2 mine
Location ..... Big Looney Creek
Location in mine ..... Face 3d right entry off No. 2 main entry
Coal ..... Keokee
Depth below surface ..... 1500 feet
Specific gravity of coal 1.278

Section of Mine.

	Feet	Inches
Roof—Sandstone		
Immediate Roof		
1. Coal	.....	66
Total	5	6
Floor—shale.		
Excluded from sample, none.		

Analysis.

		Coal Air Dried	Coal Moisture Free	Coal Moisture and Ash Free
Proximate Analysis	Moisture	1.48	.....	.....
	Volatile matter	37.56	38.12	39.07
	Fixed carbon	58.56	59.44	60.93
	Ash	2.40	2.44	.....
		100.00	100.00	100.00
Sulphur		0.76	0.77	0.79
Calorific Value Determined	B. T. U.	14370	14590	14950

HARLAN COUNTY.

No 23.

Laboratory number G-3765
Operator ..... Wisconsin Steel Co.
Mine ..... "C" Seam, No. 1 mine
Location ..... Big Looney Creek
Location in mine ..... Air course No. 10, left entry, room 2
Coal ..... Keokee
Depth below surface ..... 1000 feet
Specific gravity of coal 1.262

Section of Mine.

	Feet	Inches
Roof		
Immediate Roof—Slate		
1. Splint coal	.....	18
2. Coal	.....	36
Total	4	6
Floor—fire-clay.		
Excluded from sample, none.		

Analysis.

		Coal Air Dried	Coal Moisture Free	Coal Moisture and Ash Free
Proximate Analysis	Moisture	1.22	.....	.....
	Volatile matter	37.38	37.84	38.52
	Fixed carbon	59.67	60.41	61.48
	Ash	1.73	1.75	.....
		100.00	100.00	100.00
Sulphur		0.49	0.50	0.51
Calorific Value Determined	B. T. U.	14585	14765	15030

HARLAN COUNTY.

No. 24.

Laboratory number G-3770
Operator ..... Wisconsin Steel Co.
Mine ..... "C" Seam
Location ..... Big Looney Creek
Coal ..... Keokee and McKnight
Coke from Keokee coal mixed with about 1% from McKnight seam.

Analysis.

		Coke Air Dried	Coke Moisture Free	Coke Moisture and Ash Free
Proximate Analysis	Moisture	0.29	.....	.....
	Volatile matter	2.12	2.13	2.26
	Fixed carbon	91.51	91.77	97.74
	Ash	6.08	6.10	.....
		100.00	100.00	100.00
Sulphur		0.58	0.58	0.62

HARLAN COUNTY.

No. 25.

Laboratory number	G-3764
Operator	Wisconsin Steel Co.
Mine	"D" Seam (McKnight)
Location	Big Looney Creek
Location in mine	Main entry at 6th right entry
Coal	McKnight
Depth below surface	500 feet
Specific gravity of coal	1.287

Section of Mine.

	Feet	Inches
Roof		
Immediate Roof—Slate		
1. Coal	.....	38
2. Shale	.....	3
3. Coal, shale and bone	.....	5
Total	3	10
Floor—fire-clay.		
Excluded from sample, Nos. 2 and 3.		

Analysis.

		Coal Air Dried	Coal Moisture Free	Coal Moisture and Ash Free
Proximate Analysis	Moisture	1.14	.....	.....
	Volatile matter	37.13	37.56	39.91
	Fixed carbon	55.90	56.55	60.09
	Ash	5.83	5.89	.....
		100.00	100.00	100.00
Sulphur		0.89	0.90	0.96
Calorific Value Determined	B. T. U.	14250	14410	15320

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